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09/896,187	06/29/2001	Eric J. Horvitz	MS164185.1	9560

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EXAMINER	
SHORTLEDGE, THOMAS E	
ART UNIT	**PAPER NUMBER**
2654	

DATE MAILED: 03/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/896,187	HORVITZ ET AL.
	Examiner	Art Unit
	Thomas E Shortledge	2654

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16,20,21,29 and 55* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16,20-21,29,55* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *1/04/2002*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3, 12-15, 20-21, and 29 rejected under 35 U.S.C. 102(b) as being anticipated by Horvitz et al. (6,021,403).

As to claims 1 and 29, Horvitz et al. teach:

a query component that receives a new query (free-text query) and a new extrinsic data (visual, speech or gesture information from the user), the query component operatively coupled to an inference model (interface engine) and a knowledge data store (a word input, typed in free-text queries for assistance with visual information about users, such as a gaze, and gesture information, and speech information, also including a interface engine which uses a Bayesian network knowledge base, col. 5, lines 50-52, and 57-61);

a natural language processing component that parses (dividing the query) the new query, (dividing the query so that events may be modeled after sets of words within the query, col. 10, lines 7-12);

an interference component that infers one or more informational goals based, at least in part, on at least one of the new query, the new extrinsic data and an inference data stored in the inference model, (the interface system includes the user's goals (col. 18, lines 45-50), where the users goals are related by he query the user inputs, col. 20, lines 30-31).

As to claim 2, Horvitz et al. teach the informational goals include least one of, a type of information requested in the query, a topic, a focal point of the query, an age of a person presenting a query to the system and one or more levels of detail desired in response to the query (the goals and needs in turn influence the sensed activity and the words that might be used in a query to the software, (col. 20, lines 30-31). Inherently, since the goals influence the input query to the software, the goals would be the focal point of the query and contain the type of information requested or a topic).

As to claim 3, Horvitz et al. teach:

an input query log (profile) that stores at least on of, one or more queries and on or more pieces of extrinsic data (creating a user profile, where in the user profile models based on the user input query are stored, col. 17, lines 40-42).

a learning system operatively coupled to the input query log, the learning system operable to produce the inference model, (if the profile database is created if one is not found for the user, where the profile is used to allow the user to input user competency dialog, and the information is then passed to the inference system and used, col. 18, lines 12-19).

As to claim 12, Horvitz et al. teach the input query log is at least one of a data store and a manual store (the user profile can be automatically updated with the records of helped received in the past, and the user is also able to create a profile during the initial usage of the system, col. 17, lines 17-22, and 11-14).

As to claim 13, Horvitz et al. teach the natural language processor parses a query into one or more parts suitable for retrieving one or more conditional probabilities stored in the inference model (the user is divided into modeled events, where a Bayesian network then finds the probabilities relating to each model, col. 10, lines 5-10, 56-57, and col. 19, lines 25-30).

As to claim 14, Horvitz et al. teach the one or more parts comprise at least one of, logical forms, adjectival phrases, adverbial phrases, noun phrases, verb phrases, prepositional phrases and parse trees (dividing the input into sets, where one set may represent the verbs and the another may represent the nouns, col. 10, lines 5-15).

As to claim 15, Horvitz et al. teach the inference engine further infers one or more informational goals base, at least in part, on at least one of the query, the extrinsic data, the one or more parts, and the one or more conditional probabilities stored in the inference model, (the interface system includes the user's goals (col. 18, lines 45-50), where the users goals are related by he query the user inputs, col. 20, lines 30-31).

As to claim 20, Horvitz et al. teach the knowledge data store is searchable for information responsive to a new query and where the information retrieved will depend, at least in part, on the inferred informational goals, (a word input, typed in free-text queries is inputted into a system including a interface engine which uses a Bayesian network knowledge base and is able to compute the probability of the user's goals based on the knowledge base, col. 5, lines 50-52, and 57-61 and col. 6, lines 7-9).

As to claim 21, Horvitz et al. teach the query subsystem is compiled into an executable, and where the executable accepts as input one or more query distinctions, (an event specification tool that creates high level events from combinations of user actions, such as visual information about the user, such as gaze and gesture information, and speech information, col. 5, lines 51-55).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 4-11, and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horvitz as applied to claim 3 above, and further in view of Hobson et al. (5,694,559).

As to claim 4, Horvitz et al. teach:

wherein the inference model stores information concerning conditional probabilities associated with the likelihood that one or more informational goals exist, where the conditional probabilities of the informational goals are determined, at least in part from Bayesian statistical analysis (the inference engine includes inference procedures that operate on a knowledge base, where the knowledge base may be Bayesian influence diagrams with inference procedures for operating on Bayesian networks to compute a posterior probability distribution over the values of variable n the network (col. 19, lines 45-55).

Horvitz et al. does not teach:

the natural language processor further produces data concerning one or more linguistic features;

a tagging tool that facilitates manipulating the linguistic data;

one or more taggers that manipulates the linguistic data; nor

performing statistical analysis on the linguistic data.

However, Hobson et al. teach:

the natural language processor further produces data concerning one or more linguistic features (stripping the input of white space, punctuation for each word, divides the input into individual words, and performs other language specific processing such as noun-verb disambiguation, col. 11, lines 21-25);

a tagging tool that facilitates manipulating the linguistic data (finding the tokens for each word in the input, the tokens allow the words to be turned into the infinite and singular form, col. 11, lines 25-35);

one or more taggers that manipulates the linguistic data (tokenizing the input, where each token represents a lemma for each word, and each of the verbs are converted into the infinite form and plural words are converted into singular, col. 11, lines 25-35); and

performing statistical analysis on the linguistic data (creating phrases by lining up the tokens (representing words), (col. 12, lines 30-31) and finding the probability of each phrase by multiplying all of the preceding function word indefinite probabilities together, (col. 14, lines 1-5). Since each of the indefinite probabilities of the words making up the

phrases are multiplied together, probabilities for each functional word would necessarily be previously calculated).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the question answer system of Horvitz et al. with the tokenizing process of Hobson et al. to decrease user frustration by increasing the systems ability to determine what help the user needs, as taught by Hobson et al. (col. 1, lines 32-35).

As to claim 5, Horvitz et al. does not teach the linguistic data comprises a parse tree, where the parse tree contains extractable information concerning the nature of and relationships between observable linguistic features.

However, Hobson et al. teach creating token tables, breaking down each word into the tokens representing the input word, where the table is used to create the multiple phrases, (col. 11, line 63 through col. 12, line 14).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the question answer system of Horvitz et al. with the tokenizing process of Hobson et al. to decrease user frustration by increasing the systems ability to determine what help the user needs, as taught by Hobson et al. (col. 1, lines 32-35).

As to claim 6, Horvitz et al. does not teach the observable linguistic features in the extractable information comprise word-based features, structural features and hybrid linguistic features.

However, Hobson et al. teach the linguistic features are the lemma for the word, correlation with surrounding words, and the context of the word, (col. 11, lines 34, 37, and col. 12, lines 50-53).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the question answer system of Horvitz et al. with the tokenizing process of Hobson et al. to decrease user frustration by increasing the systems ability to determine what help the user needs, as taught by Hobson et al. (col. 1, lines 32-35).

As to claim 7, Horvitz et al. teach word based features indicate the presence of one or more candidate terms that can be employed in predicting an informational goal (words and word sets from the input query is divided from the input and set the inference system where the goals are determined from the input words, col. 10, lines 9-11 and col. 20, lines 30-32).

As to claim 8, Horvitz et al. does not teach the taggers manipulate the linguistic data to conform with one or more schemas associated with reasoning concerning the relevance of a part of a query based on one or more language models.

However, Hobson et al. teach the words are tokenized to create numerous phrase variations, where each phrase variation is matched to a synonym record and an associated metanym record (col. 12, lines 28-30, and 55-61).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the question answer system of Horvitz et al. with the tokenizing process of Hobson et al. to decrease user frustration by increasing the systems ability to determine what help the user needs, as taught by Hobson et al. (col. 1, lines 32-35).

As to claim 10, Horvitz et al. teach the inference model represents a probabilistic dependency model, (the interface engine is able to see if the probability the user will need assistance, col. 9, lines 42-46).

As to claim 11, Horvitz et al. does not teach the inference model comprises one or more decision trees, the decision trees store conditional probabilities associated with one or more informational goals, the decision trees being traversable by the linguistic data.

However, Hobson et al. teach finding the probability of each phrase variation created from lining up the tokenized words, where the probability is determined by multiplying all the proceeding functional word indefinite probabilities together, and where the functional word indefinite probabilities relate how well the words equal the goals of the input, (col. 14, lines 1-5, and 10-20).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the question answer system of Horvitz et al. with the tokenizing process of Hobson et al. to decrease user frustration by increasing the systems ability to determine what help the user needs, as taught by Hobson et al. (col. 1, lines 32-35).

As to claim 55, Horvitz et al. teach:

wherein the inference model stores information concerning conditional probabilities associated with the likelihood that one or more informational goals exist, where the conditional probabilities of the informational goals are determined, at least in part from Bayesian statistical analysis (the inference engine includes inference procedures that operate on a knowledge base, where the knowledge base may be Bayesian influence diagrams with inference procedures for operating on Bayesian networks to compute a posterior probability distribution over the values of variable n the network (col. 19, lines 45-55).

Horvitz et al. does not teach:

the natural language processor further produces data concerning one or more linguistic features;

a tagging tool that facilitates manipulating the linguistic data;

one or more taggers that manipulates the linguistic data; nor

performing statistical analysis on the linguistic data.

However, Hobson et al. teach:

the natural language processor further produces data concerning one or more linguistic features (stripping the input of white space, punctuation for each word, divides the input into individual words, and performs other language specific processing such as noun-verb disambiguation, col. 11, lines 21-25);

a tagging tool that facilitates manipulating the linguistic data (finding the tokens for each word in the input, the tokens allow the words to be turned into the infinite and singular form, col. 11, lines 25-35);

one or more taggers that manipulates the linguistic data (tokenizing the input, where each token represents a lemma for each word, and each of the verbs are converted into the infinite form and plural words are converted into singular, col. 11, lines 25-35); and

performing statistical analysis on the linguistic data (creating phrases by lining up the tokens (representing words), (col. 12, lines 30-31) and finding the probability of each phrase by multiplying all of the preceding function word indefinite probabilities together, (col. 14, lines 1-5). Since each of the indefinite probabilities of the words making up the phrases are multiplied together, probabilities for each functional word would necessarily be previously calculated).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the question answer system of Horvitz et al. with the tokenizing process of Hobson et al. to decrease user frustration by increasing the systems ability to determine what help the user needs, as taught by Hobson et al. (col. 1, lines 32-35).

5. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Horvtiz et al. as applied to claim 3 above, and further in view of Weber (6,499,013).

As to claim 16, Horvitz et al. teach an answer generator (displaying a list of help topics to the user based on the input, col. 30, lines 40-45).

Horvitz et al. does not teach the output can be an error message.

However, Weber teaches an error message, (Fig. 3A, step 320).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the question answer system of Horvitz et al. with the error message output of Weber to increase the ability for the system to determine the correct meaning of the words detected by the speech recognition system, as taught by Weber, (col. 2, lines 4-7).

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Shwartz et al. (5,197,005), Del Monte (5,704,060), and Ho et al. (5,836,771).

Shwartz et al. teach a database with a natural language interface used to retrieve data.

Del Monte teaches using text to store and retrieve data, where the text is represented by structures.

Ho et al. teach a user interface that is able to teach the user a subject based on the input of the user.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas E Shortledge whose telephone number is (703)605-1199. The examiner can normally be reached on M-F 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Talivaldis Smits can be reached on (703)306-3011. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RICHEMOND DORVIL
SUPERVISORY PATENT EXAMINER

TS
2/17/05